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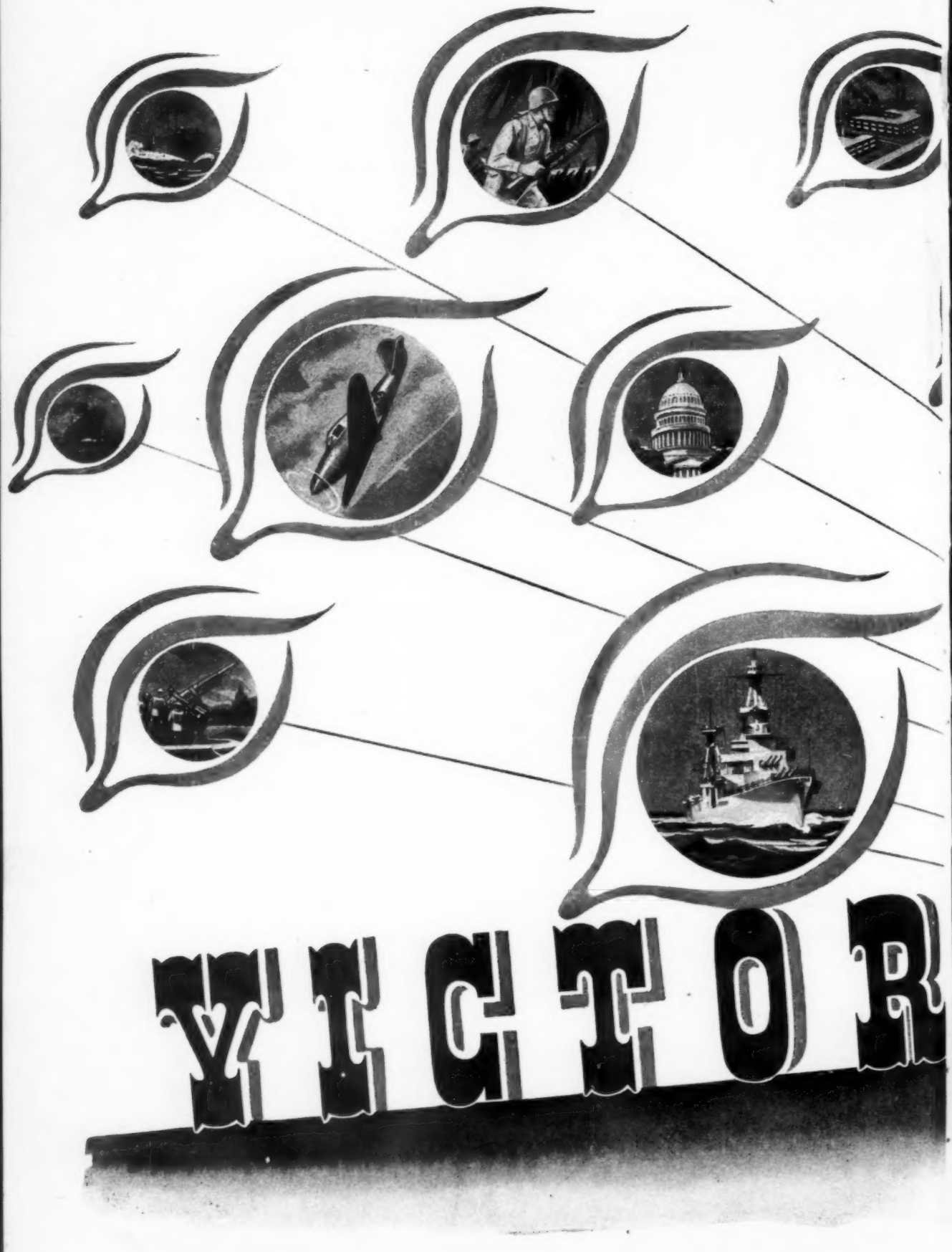
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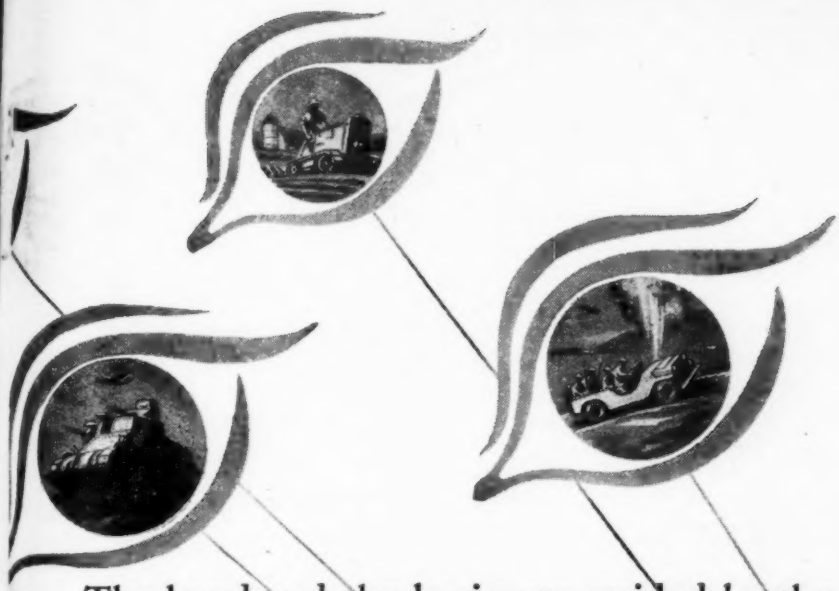

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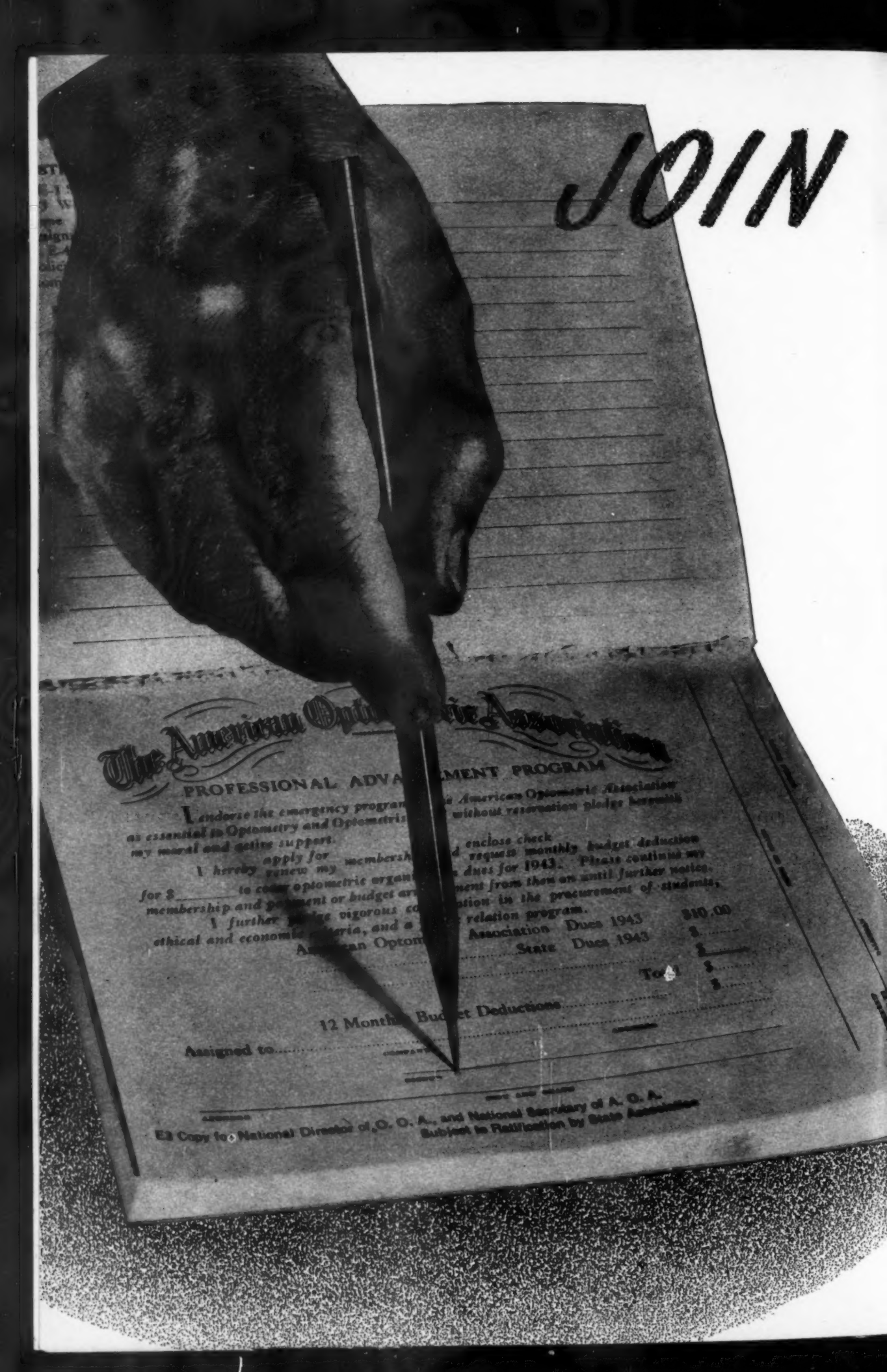
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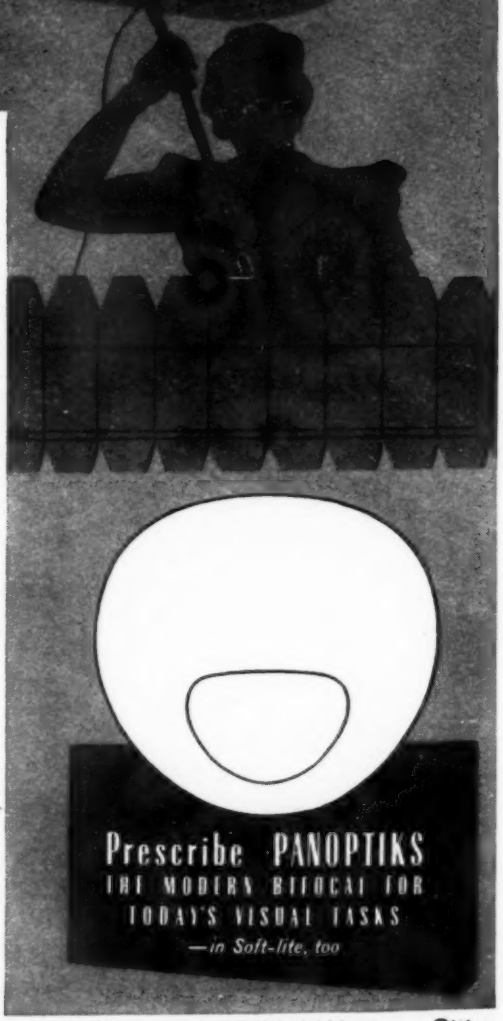

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ANISEIKONIC CASE REPORTS*

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ANISEIKONIA

The purpose of this paper is to further acquaint the reader with aniseikonia, its symptoms, and consequently, its recognition in private practice.

Professional interest in aniseikonia has been rapidly growing since it was demonstrated by the Dartmouth Eye Institute about fifteen years ago, that aniseikonia is a factor in the functioning of vision, particularly that it may be a cause of eye strain and affect binocular space perception.

It is thought, for instance, that the latter fact may be of great importance in aviation. For this reason, members of the Dartmouth Eye Institute made tests at the U. S. Naval Station at Pensacola, Fla., where it was found that in 107 cadets examined 1% or less size difference was found.†

Aniseikonia is defined as that condition of the binocular visual apparatus in which the ocular images are unequal in either size or shape, or both. Iseikonia, then, is the condition in which the size and shape of the ocular images are the same. Aniseikonic differences can be measured by means of an eikonometer. The lenses which correct the condition of aniseikonia are called iseikonic lenses, and they are lenses of specified refractive power and magnification. The American Optical Company has done a splendid job in the manufacture of these rather complicated lenses. They are made up in the form of bitorics, with rather steep curves on both surfaces, doublets, with an air space, laminated

*An abridgment of the material presented before the Colorado Optometric Association, Margery Reed Nurses' Home, Glockner Sanatorium and Hospital, Colorado Springs, Colorado, April 23, 1942. Submitted on May 28, 1942, for publication in the January, 1943, issue of the AMERICAN JOURNAL OF OPTOMETRY AND ARCHIVES OF AMERICAN ACADEMY OF OPTOMETRY.

†Bannon, R. E. A. J. of O. June, 1942.

bitoric bifocal lens, and sometimes fitovers. There are many people who have symptoms associated with the use of their eyes which cannot be accounted for by the ordinary ocular defects.[1] That is, they may have no refractive or muscular error, or it may be corrected and the symptoms prevail. The occurrence of the common symptoms in aniseikonic subjects are indicated in the following chart found at the aniseikonic clinic in Colorado Springs:

Headaches	66%	Nervousness	42%
Reading difficulty	84%	Burning or itching	64%
Photophobia	62%	Train-car sickness	46%
Vertigo	52%	Movies	57%
Nausea	49%	Blurring	45%
Eye fatigue	79%	Sleepiness	22%

There is a possibility that such individuals may have aniseikonia.

Because symptoms of aniseikonia are merely protean manifestations of eyestrain, other possible ocular defects must be ruled out before the examination for aniseikonia. Factors which may lead one to suspect aniseikonia are:[2]

1. Symptoms unrelieved.
2. Anisometropia.
3. Unequal accommodation.
4. Unequal curves and thickness.
5. Space perception anomalies.
6. Preference of monocular vision.

No. 1—Symptoms Unrelieved

If the possible corrections do not seem adjunct to the symptoms or the possibilities in command have been exhausted the patient is a candidate for further examination as is shown in the following cases:

CASE REPORT NO. 1

Mrs. C. B. M., age 42, when first seen complained of headaches which had been diagnosed as migraine, but were definitely associated with the use of her eyes. She also complained of photophobia and some eye fatigue. She would not get her headaches until several hours after using her eyes. She had been wearing: right eye, + 0.50 D. Sph. ⌒ —1.00 D. Cyl. Axis 160; left eye, + 0.75 D. Sph. ⌒ —0.75 D. Cyl. Axis 10, along with 5△ base-in prism over each eye. At distance her phoria was 16° exophoria and 26° exophoria at near.

When measured for aniseikonia, it was found that she exhibited an image size difference of 1.75%. Without the prism and size correction she had diplopia at near, however, after wearing the prescription for about three months the patient reported that she had had no headaches, but that they would immediately return when she would wear her old glasses.

Comments: In this case the headaches were of a migraine type, but were aggravated by the use of her eyes. It seems evident that the muscle imbalance might be aggravated by the image size difference and that it may not be fully relieved without the correction for aniseikonia.

CASE REPORT NO. 2

J. F., age 19, a high school student, complained of headaches and extreme reading difficulty. At age 9, he received an external rectus tuck reducing 9° esophoria to orthophoria with the return of 9° esophoria in one month's time. At age 12, he received six months of orthoptics reducing his esophoria and increasing his reading rate, but the symptoms were unrelieved. +1.00 D. spheres, O.U. were prescribed for reading with no benefit.

The patient when seen was emmetropic with 9° esophoria at distance and near and was found to have an image size difference of 3.75%. One month after the ocular image size had been corrected he reported complete relief from headaches with no reading difficulty. At this time he exhibited 6° esophoria. One month later he was reexamined and was found to have only 3° esophoria.

These cases indicate that a muscle imbalance may be aggravated by an image size difference which when corrected reduces the heterophoria.

CASE REPORT NO. 3

B. G., age 9, in the third grade, was referred to the clinic because of extreme lacrimation which was not amenable to medication. A complete physical examination, probing of the nasal lacrimal ducts had been administered. He was also found to be a congenital non-reader. The patient was found to be emmetropic with orthophoria at the distance and 6° exophoria at near. The image size difference was found to be 0.75%.

Comments: One month after receiving aniseikonic correction the patient returned to the clinic. No more lacrimation was experienced and

his teachers stated that he had made remarkable improvement in school work.

No. 2—Anisometropia

While previous students and writers recognized the disturbance caused by anisometropia, they are not agreed as to the explanation. Donders and many other observers believed that unequal images were important. Hess and others considered that the prismatic effect produced by looking through the periphery of the lenses was sufficient to tax the functional faculty. In the writer's opinion, the most obvious cause of aniseikonia is anisometropia. A problem which we must solve every day in our practice is how to deal with anisometropia. We know that slight differences are easily borne by most patients but that very few persons can take care of large differences.[3]

Aniseikonia, or an inequality of the left and right ocular images of one and the same object, may be caused by a combination of the physical, physiological, or psychological processes. This important observation excludes the possibility of calculating the amount of aniseikonia from a given prescription. Certain assumptions make it possible to compute the relative size of retinal images but not that of ocular images. A reliable correlation between the refractive condition and the "eikonic" condition of a pair of eyes does not exist. Emmetropes may have aniseikonia. Anisometropes may have size differences opposite those expected by calculation. In short, size differences between the two ocular images can be determined only by actual measurement.

CASE REPORT NO. 4

Miss L. M., age 19, was wearing: right eye, +2.25 D. Sph. ⌒ —1.00 D. Cyl. Axis 15, V.A. 20/70; left eye, +1.00 D. Sph. ⌒ —1.00 D. Cyl. Axis 165, V.A. 20/20.

The patient stated that she had occasional headaches and never had good vision with her right eye and was very anxious to improve her vision so as to eliminate the possibility of losing it permanently.

Rx.: right eye, +4.25 D. Sph. ⌒ —1.75 D. Cyl. Axis 15, V.A. 20/20; left eye, +1.25 D. Sph. ⌒ —1.25 D. Cyl. Axis 165, V.A. 20/15. This correction produced a high exotropia causing diplopia at near. It was for this reason the referring doctor had altered the correction and sacrified the right eye vision.

Upon examination for aniseikonia the left eye image was found to

be smaller by 5.00% in the vertical meridian and 3.75% in the horizontal meridian.

Comments: After wearing an image size correction for one month the patient returned to the clinic. No more headaches were experienced, and the right eye vision had improved to 20/15.

CASE REPORT NO. 5

Mr. A. B., age 47, was wearing: right eye, +0.75 D. Sph. ⌒ —1.00 D. Cyl. Axis 110; left eye, +0.50 D. Sph.; add O.U. +1.75 D. Sph.

This patient stated that eye fatigue limited the use of his eyes for ten minutes at a time and that it was extremely difficult for him to read. When reading he had a tendency to skip lines and his span of recognition was about two letters. When relative size was tested it was found that the left ocular image was larger than the right to the extent of 2.50% in the horizontal meridian. After wearing an image size prescription for one month the patient reported that he no longer experienced any eye strain and that reading was a pleasure rather than an effort.

CASE REPORT NO. 6

Mr. G. H., age 32, an insurance broker, was wearing: right eye, plano with 1△ base-in prism, V.A. 20/20; left eye, —1.00 D. Sph. ⌒ —1.00 D. Cyl. Axis 135, ⌒ 1△ base-in prism, V.A. 20/20. His refraction was found to be: right eye, —0.25 D. Cyl. Axis 165, V.A. 20/15; left eye, —1.50 D. Sph., V.A. 20/15.

For a period of ten years this patient had experienced considerable discomfort when in crowds. This would give him a sensation of vertigo followed by nausea. He also complained of extreme photophobia and headaches about three times a week. He was measured for size difference and was found to have aniseikonia of a different amount for far and near. At the distance the left eye was smaller by 1.25% in the vertical meridian while at near the left eye was smaller by 2.25% in the vertical meridian and the right eye smaller by 1.00% in the horizontal meridian.

Comments: Prescriptions were given for both far and near and the patient reported to us after wearing the glasses for one month that he had almost immediate relief from all of his symptoms. In this case of anisometropia, vision had been sacrificed for comfort.

In cases 4 and 5 the size corrections were as expected mathematically

in an anisometropic correction, while in case 6 there was no correlation whatever.

A point not mentioned by most authors is the different amounts of accommodation required to see a near object by the two eyes when high anisometropia is corrected, e.g.: right eye, 4.00 D.; left eye, Plano. The patient is required to see an object 13 inches from the lens. The accommodation necessary for the right eye is 3.211 D., while for the left eye 2.885 D., a difference of .326 D. The nearer the object viewed the greater the difference in accommodation. An object 10 inches away requires nearly 1/2 D. difference in accommodation between the eyes.[4]

No. 3—Unequal Accommodation

Unequal accommodation in a pathology-free isometropic individual is a much disputed subject. In some cases it has been found that where patients exhibit unequal accommodation by ordinary methods, the patients are found to have a different aniseikonic error for distance and near. This may be another clue to the existance of aniseikonia.

Attempts to correct unequal accommodation by unequal near-point adds in presbyopes increases the amount of aniseikonia. It is universally accepted that increased accommodation reduces the size of the retinal image. An increase in the near-point add will increase the size of the image. If the near-point add is increased on the lesser accommodating eye, the image size for that eye will be increased further. The image size for the greater accommodating eye will be reduced, thereby increasing the amount of aniseikonia. This induced aniseikonia can be compensated for by aniseikonic lenses as is illustrated as follows:

CASE REPORT NO. 7

Miss L. K., age 50, wearing: right eye, —0.75 D. Sph. ⌒ —1.75 D. Cyl. Axis 15, V.A. 20/20; left eye, —1.00 D. Sph. ⌒ —1.75 D. Cyl. Axis 165, V.A. 20/20; add O.U. +1.00 D. Sph.

This patient had been unable to work for the last 20 years, during which time she had had a great many operations including a number on the sinuses. Her chief complaint was migraine headaches which had not improved or changed through all the operations. The headaches were constant, but more severe in the early morning hours. However, she began to notice more symptoms as time went on such as: photophobia, lacrimation, eyes ache and pain. She had a spatial anomaly which gave her a definite vertigo and the effect of approaching cars

coming directly at her. She also stated that she felt as though she were always walking on rubber, which later was found to be the effect of space perception anomalies. She had been using her right eye for near and the left eye for distance.

She was tested for refraction and size difference. The necessary near-point add was found to be: right eye, +1.25 D. Sph.; left eye, +2.00 D. Sph. The relative size difference was different for distance and near.

Comments: After one month the patient reported that she received moderate relief. The right eye was probably used for near because the image was more clearly defined both before presbyopia and after correction was necessary. The right eye had the smaller image both because it is the greater accommodating eye and required a smaller add.

CASE REPORT NO. 8

Mrs. R. L., age 44, was wearing: + 0.50 D. Sph. O.U. with an add of +1.50 D. Sph. O.U. This patient had been forced to give up practically all her reading because of eye fatigue, photophobia, and frontal headaches. She was annoyed by any peripheral motion. Upon refraction it was found that she required unequal adds, i.e., right eye, +2.00 D. Sph.; and left eye, +1.50 D. Sph.

An examination for aniseikonia revealed an inequality of the image sizes of different amounts for distance and near.

Comments: After wearing these prescriptions for one month the patient reported that she received complete relief of her symptoms.

The two above cases suggest meridional accommodation in that while there is a difference in the required near-point add the aniseikonia changed in one meridian only from distance to near.

In the first case there was a great change in the horizontal meridian and a small change in the vertical meridian. In the second case, there was no change in the horizontal and a large change in the vertical meridian. This illustrates that there is no regularity in the size changes produced by lenses. This also illustrates the effect of giving unequal near-point adds which can only be controlled by actual measurements of the aniseikonia in any particular subject.

No. 4—Unequal Curves or Thickness

Unequal curves or thickness produces different magnification which

may play an important part in producing and consequently, in correcting aniseikonia.

Evaluating unequal curves or thickness which may be produced by: 1. Anisometropia and its correction; 2. Careless duplication, or failure to fill prescription with equal curves and thickness resulting in: (A) Unequal lens curves which produce a difference in the size of images and, hence, produces the effects of aniseikonia. (B) Unequal lens thickness, which likewise, produces a difference in size of images.

Anisometropia always produces a difference in the curvature of the surfaces of the lenses which correct it, and very often lens thicknesses cannot be equalized by ordinary laboratory methods.

For example: A difference of 5 D. of curvature of a lens 3 mm. thick produces 1% spurious magnification. A 1.5 mm. difference in the thickness in a lens of 10 D. front curvature produces 1% spurious magnification. A 2 mm. difference in the thickness of a 5 D. lens produces 1% spurious magnification.[5] This seemingly small spurious magnification results in approximately 2½ times that amount of aniseikonia.

No. 5—Space Perception Anomalies

Patients with space perception anomalies can usually be detected by their symptoms. They often complain of reading difficulty, car-train sickness, nausea, vertigo, instability while walking, and are much annoyed by crowds and movies. Space perception anomalies have a number of causes. Space perception anomalies producing aniseikonia may be caused by:

(1) Anisometropia in which the space perception anomalies or the refractive difference may be producing a difference in size of images.

(2) Prescription changed to decrease anisometropia producing a magnification in one eye and a minification in the other.

(3) Unequal curves or thicknesses producing size differences.

CASE REPORT NO. 9

Mrs. E. B. McD., age 66, housewife. Until two years before coming to the clinic she experienced no difficulty in the use of her eyes. At that time she began to suffer from constipation. Fluoroscopy showed that food stayed in her stomach five hours before digestion would begin. In spite of all her efforts she was unable to find relief. This resulted in frontal headaches, lacrimation, photophobia, burning, itching, eye fatigue

and vertigo. She also said the right side of the floor always seemed low and was bothered by peripheral motion.

When referred to the clinic by an internist she was wearing: right eye +1.75 D.Sph. ⌒ —0.50 D.Cyl. Axis 150, V.A. 20/20; left eye, +1.75 D.Sph. ⌒ —0.75 D.Cyl. Axis 90, V.A. 20/20; Add +2.00 D.Sph. O.U. Our refraction was: right eye, +1.50 D.Sph. ⌒ —0.25 D.Cyl. Axis 25, V.A. 20/15; left eye, +2.00 D.Sph.⌒ —0.75 D.Cyl. Axis 90, V.A. 20/15; Add +2.00 D.Sph. O.U.

Upon examination for aniseikonia the right ocular image was smaller than the left to the extent of 2.00% O.A. Upon receiving the size lenses she reported complete relief almost immediately from her stomach trouble and consequently, from the rest of her symptoms.

No. 6. *Preference for Monocular Vision.*

Preference for monocular vision has heretofore been classified as a monocular case and a candidate for surgery, orthoptics, occlusion, or generally disregarded.

Monocular vision preference may be caused by a number of factors. Of particular interest at this time, it may cause or be caused by a muscle imbalance, improper training, or unequal vision. In most of these cases surgery or orthoptics may relieve the patients' symptoms. In the event that the patient has a size difference greater than he can tolerate with comfort, monocular vision may be attempted. It has been found that aniseikonic subjects with monocular vision preference have not only been unable to get relief by surgery or orthoptics, but that, their muscle imbalance would return in a short time, with a result of discomfort or monocular vision preference. (See Case Report No. 4.)

This patient's correction had been purposely altered in order to eliminate diplopia at near. Amblyopia ex anopsia was present as a further increase in vision was found after wearing the glasses for one month.

CASE REPORT NO. 10

Mr. R. A., age 41, an electrical engineer, was recovering from a nervous breakdown when first seen. For most of his life he had had headaches almost constantly, these being more severe from the use of his eyes. He was a slow reader and complained of diplopia and fatigue after reading a very short time.

Our refraction was found to be the same as he was wearing. This was as follows: right eye, +0.50 D.Sph.⌒ —0.50 D.Cyl. Axis 10,

V.A. 20/15; left eye, +0.50 D.Sph.⊂ —0.50 D.Cyl. Axis 180, V.A. 20/40—.

Upon examination for aniseikonia he was found to have the right eye image smaller by 1.50% in the vertical meridian. This was then corrected. After wearing this correction for one month the patient returned to the clinic and reported complete relief from his nervousness and that he had not experienced a headache since wearing the glasses.

It was also noted that in his left eye, vision had increased to 20/15, and that he no longer exhibited a central scotoma in that eye. This reduced vision resulted in a monocular vision preference causing a muscle imbalance. After one month, the muscle imbalance was no longer present and diplopia has not been experienced since.

It has always been desired to have a screening test for aniseikonia. As yet, no device has been satisfactorily perfected. Various pictures viewed through polaroid lens systems have been experimented with with no desirable results.

A serious technical difficulty is that at present tests cannot be made in the average office since special instruments and special techniques are necessary. The corrective procedures and lenses are expensive so that it is not possible, as conditions now exist, to have the test made on all patients upon whom one would desire to have it made. It does not as yet seem feasible that all eye specialists should be prepared to make aniseikonic tests. The examination is very time consuming and is of such meticulous nature that would not be of interest to many eye specialists. We have found it impossible to make more than two or three, or at the most, four tests in one day with one technician and one instrument. Frequently, factors pertaining to the broad aspects of health have a bearing on the subject. The psychological attitude of the patient has to be studied; as well as the question of phoria; muscle power and refraction. The general medical consideration of the patient is an element to be seriously weighed in deciding on a prescription for aniseikonia. Not to have an adequate number of instruments for examinations of all those needing them is a serious matter, but to have every eye doctor using eikonometers would be hard to conceive. Unless plenty of time is used for the examination, the result is not satisfactory. The question of mere measurement of aniseikonia is not sufficient, one must study the tolerance of aniseikonia and the amplitude of aniseikonia, before one can be justified in writing a prescription. It would be only natural for the busy doctor to fail to take the necessary time to study all of these

points and to prescribe only upon the immediate findings and this in our experience would not give good results.[6]

The cases used in this paper are those whose results were satisfactory in order to illustrate the effect size correction to the symptoms outlined.

About 80 per cent of the patients accepted for examination have received satisfactory results, 10 per cent no results or unsatisfactory results and the remaining 10 per cent do not exhibit a size difference. This is not only true in this clinic, but is reported from other clinics as well. You will also notice that the cases illustrated are those whose symptoms were of long standing and quite severe. This does not exclude the fact that many people with a much lesser degree of difficulty may receive relief with the aid of aniseikonic lenses.

REFERENCES

1. Gliddon, G. H., "Aniseikonia," The Journal of the Optical Society of America, Volume 30, Number 4, pp. 142-144, April, 1940.
2. Fisher, H. M., "Aniseikonia," American Academy of Optometry, December, 1941.
3. Lancaster, W. B., "Aniseikonia," Transactions of the American Ophthalmological Society, Seventy-fourth Annual Meeting, held in San Francisco, Calif., 1938.
4. Crundal, E. J., The Optician, June, 1941.
5. American Optical Company Research Division.
6. Post, L. T., "Aniseikonia," Department of Ophthalmology, Washington University and Oscar Johnson Institute.

CORRECTION OF APHAKIA AND HYPERPHORIA WITH A CONTACT LENS. A CASE REPORT*

Reuben Greenspoon, O.D.
Beverly Hills, Calif.

This is the report of a patient who is a chemistry professor. Eleven years ago this patient had a glass tube explode while he was holding it before him and some of the glass entered his left eye piercing the crystalline lens. This glass remained in the crystalline lens for three months, during which time the lens became entirely opaque. An operation was then performed during which the glass was removed and following which the lens was absorbed.

Following the operation several attempts were made to correct the aphakic vision of the left eye with lenses, but with glasses the patient found fusion to be impossible and for that reason used no correction. It took him a year and one-half to become accustomed to monocular vision.

An examination of the patient's left eye made during 1942 disclosed a serious scar on the upper sections of the left cornea and an unabsorbed capsule obstructing the lower half of the left pupil.

His uncorrected visual acuity was as follows: O.D. 20/22. O.S. 5/200 aphakia.

The ophthalmometer findings were:

O.D. 42.25 D./43.25 D. axis 20.

O.S. 42.00 D./43.25 D. axis 45 and 155, cornea irregular.

The correction which gave him best monocular vision was as follows: O.D. +0.62 D. Sph. ⌒ —0.62 D. Cyl. axis 20. V.A. 20/20. O.S. +12.50 D. Sph. ⌒ —0.50 D. Cyl. axis 135. V.A. 20/40. With this correction in place before his eyes, to align a red and white light required 12△ base-out and 3△ base-up prisms before the left eye.

It was then decided to attempt to improve the vision of the left eye by means of a contact lens. With the first one tried, a 275/75 ⌒ +9.50 D. Sph., it required 8△ prism, with its base at 28° to align

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the images, the left of which seemed larger. Leaving the contact lens in place, various reverse telescopic lens set-ups were tried, such as adding additional plus power to the contact lens and wearing a minus lens in regular spectacles, with fair results as to the correction of the size difference.

After many trials of different contact lenses, it was determined that a contact lens with as flat a corneal curve as possible and with sufficient prism incorporated in the contact lens to align images horizontally, should give fair results.

The contact lens prescribed for the left eye was a plastic contact lens having a toric scleral portion with a 13.0 mm., radius in the horizontal meridian and a 12.4 mm., radius in the vertical meridian. Corneal radius was 8.0 mm., combined with a +12.00 D. sphere and a 3½ △ prism base-up.

When the lens was completed and inserted in place his vision with the left eye was 20/30.

Patient reported that the size of the image with the left eye seemed the same as that seen with the right eye. The 3½ △ base-up prism ground into the contact lens aligned images horizontally, although two images were seen on the horizontal level at first, these fused into one after a short period.

At the conclusion of several weeks of use of this contact lens for the left eye, the vision with this eye improved to 20/20. With the aid of this lens the professor qualified for a position that required binocular vision.

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OPTOMETRY OVERCOMES MAJOR DIFFICULTIES IN A PROGRAM OF ORTHOPTIC TRAINING

Due to the appropriate background of undergraduate optometric training and to the widespread interest evidenced amongst optometrists in the subject of orthoptics, it is now safe to say that optometrists as a professional group have mastered, to a very large degree, the three difficulties encountered in a controlled program of clinical orthoptic training. Optometrists both in practice and in educational centers have made many technical contributions to this branch of ocular work, until today the successful and widespread practice of orthoptic procedures in all parts of these United States is both accepted as a standard part of ocular practice and also serves as a rehabilitation program of great value to all people.

The three difficulties which optometry has, to a large degree, overcome in developing the clinical practice of an orthoptic training program are (1) the need for a thorough understanding of the binocular problem in its many aspects. (2) The psychological problem of patient control in either the child or visually subnormal adult, and (3) the matter of personal individual treatment care and the proper yet adequate compensation for the time and skills involved.

Due to his undergraduate training in physiological optics, ocular myology and kindred subjects, the optometrist is particularly well qualified to properly diagnose and evaluate the findings which reflect the binocular status of any individual and to treat these cases when necessary.

Devoting his entire time to matters of refractive care, which of necessity is to a very large degree an office procedure, the optometrist, like the dentist, has a rather long daily schedule of appointment periods to fill. Inasmuch as only a few practitioners are busy doing pure refraction only, the average optometrist has time to devote to the clinical practice of orthoptics. An opportunity which has enabled him to develop, in conjunction with fellow practitioners, psychological techniques wherein the patient's interest is both aroused and held during the sometimes rather long treatment regime frequently necessary in these cases. And because of these same rather long daily office periods, the optometrist has been able to properly serve his many patients, who require orthoptics at minimum levels of fees which at times seem very inadequate to other eye men who by necessity are content to spend but three to five hours each day in office practice.

Another factor in the success of optometry in orthoptic work is that thousands of optometrists have, to a very large degree, placed but little reliance in home visual training, preferring to devote more time to each case in the regular treatment periods as the patients visit the office.

Optometrists, too, have been reluctant to delegate these important treatment techniques to office assistants, feeling that the assignment of such patient to an assistant creates a barrier between the patient and practitioner from which both suffer.

Ophthalmology, on the other hand, has been slow to enter the orthoptic field. There is some question whether this is due to their lack of proper training or the inability of the average eye surgeon to devote the proper and needed time to these cases and the techniques they require. In either event, medical eye men seem reluctant to engage in orthoptic training programs, some even doubting their value.

These facts are brought out by the physician Krimsky[1], who, in discussing orthoptics, suggests that ophthalmologists generally devote greater attention to this important field of eye work. He seems to doubt, however, that many will, and seems hopeful that perhaps school teachers and social workers will interest themselves in certain of the psychological portions of this problem to thus assist those ophthalmologists, who can be wheedled into attempting orthoptic treatment work. In his plea for orthoptics among medical eye men, Krimsky makes the following points, which indicate perhaps the reasons why orthoptics has found so little favor among ophthalmologists.

(1). "It is only within recent years that the scientific basis for binocular training was advanced and applied by a small group of serious workers, even though some form of exercise for the eyes has been prescribed empirically for many years. Unfortunately, the principles and methods that they fostered won the sympathy of but few ophthalmologists."

(2). "The interest in orthoptic training has not progressed substantially in recent years, and one must reflect as to whether this trial period has been sufficient to evaluate its merits as a therapeutic aid, and whether it should be left to proceed on the feeble momentum generated by the sporadic efforts of a few ophthalmologists or be worthy of a more general interest."

(3). "I believe that the successful practice of orthoptics presents difficulties that are overwhelming to the average ophthalmologist . . ."

(4). "In order that orthoptics can be practiced successfully, the ophthalmologist must become as familiar with binocular study as with refraction."

It is obvious therefore that optometry can look for but little immediate help from ophthalmology in the further development of orthoptic procedures. To date, much of the diagnostic and clinical progress which has been made in this field has come from within optometry, and it is evident that this condition will continue. Optometry has to a large extent overcome the three principal difficulties encountered in doing orthoptic work and because of the current successes, the thousands and thousands of optometrists in this specialized field will continue to make technical advances and to carry the burden in this important program of eye care.

Carel C. Koch.

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[1]Emanuel Krimsky. Orthoptics at the Crossroads. Archives of Ophthalmology. Vol. 23, 619-622.

SPECIAL REPORT

OPHTHALMIC SERVICES IN A CHANGING WORLD*

Report of the Committee on Socio-Economics
American Academy of Optometry

Charles E. Jaeckle

PART I—HISTORICAL

THE RISE AND GROWTH OF INSTITUTIONAL PRACTICE

The progress of medical science has been so impressed upon us that we are not likely to overlook it at any time that our thoughts turn to medical problems. We appear to be considerably less aware of another movement which has paralleled scientific advance—the development of medical practice.

Medical Practice and the Dispensary

Originally, the doctor practiced at the patient's bedside in his home and saw some ambulatory patients who came to the doctor's home or office. As science gained in its fight on the incapacitating illnesses and learned more about the care of afflictions in their early stages, when they do not confine the sufferer, there was a gradual shift from the patient's home to the doctor's office. A third factor contributing to this result, one in which the eye doctor is particularly interested, has been cited: the growth of specialties treating conditions which by nature are not confining.

Meanwhile, the recognition of and attempts to deal with certain social problems in relation to medicine, set in motion other forces which, with our scientific advances, have brought about a situation demanding clear thinking and unemotional action.

Our modern Clinic is an outgrowth of the early Dispensary, an institution which, in the English speaking world, had its origin in London, England, in 1696 when fifty-three physicians contributed ten pounds each to purchase medicines for the poor. The fund was administered by one of the doctors in the group. The doctors visited the patients at their homes or the patients came to the doctors' offices. It was an individual matter. There was no organization except in the supplying of the drugs the doctors prescribed. It was nearly a hundred years later that the first Dispensary was established in the United States, in Philadelphia. The Philadelphia Dispensary was quickly followed

*An abridgment of a hitherto unpublished report presented before the American Academy of Optometry.

by the New York Dispensary and, in 1796 by the Boston Dispensary. "The early Boston Dispensary," says Michael M. Davis and Andrew R. Warner, "consisted merely of a drug store with a physician who was to be in attendance daily except Sundays. Ambulatory cases might see him there at 11:00 o'clock. Patients too sick to come for treatment were to be visited at their homes and to a certain extent these eighteenth century dispensary physicians saw patients at their private offices without charge. Almost the sole elements of expense in the early days were the medicines provided, and of these, at least at the Boston Dispensary, wines or spirits were the largest items among the treasurer's bills."[1] The Dispensary was "a medical soup-kitchen." Its function was to dispense a medical dole (of drugs), hence its name. The name remains, the Boston Dispensary carries on its work, but its work is quite different from that in which it originally engaged. If we will study the history of such institutions, it will reveal the past and present trends of medical practice and perhaps, suggest what the future—the near future—holds.

In 1856 the Boston Dispensary started clinics "in which the physician treated ambulatory cases at a given time and place, not in informal conferences at the apothecary shop."[2] The interest of physicians in acquiring experience in and in teaching in clinics next appeared, strengthening the clinic movement, and now we observe the beginning of the shift in medical practice, from the doctor's private office to institutions.

Hospitals and Clinics

The earliest hospitals, like the clinics (we shall use this term in place of dispensary, hereafter), were for those unable to pay anything. Today it is accepted that people go to the hospital because better medical care is possible there, not because they are indigent. Ten years ago hospitals were approaching self-support; in fact, some made public appeals only for funds for new buildings and equipment, not for maintenance. The crisis in hospital finance of 1925-1935 in no way alters the fact that the public has accepted the hospital not merely as a place for practicing charity, but as a place for efficiently practicing medicine, in an age when medical practice is no longer simple and some co-ordination of its many branches is essential in the best interests of the patient.

The out-patient clinic has tended to develop in the same way,

though to a less extent. First, the emphasis shifted from alms-giving (in the form of drugs) to medical service; second, the clinic service was extended not merely to the destitute but to persons of very low income; third, the practice of payment by the patients was instituted. This last practice has undergone rapid changes. The charges were at first very small, then grew larger until finally the "pay clinic" was established. By "pay clinic" is meant a clinic which charges fees sufficient to meet all costs, including compensation for the doctor. The first such clinic was an eye clinic established by the Boston Dispensary in 1913.[8] The inability of the patient to spot the medical quack, to distinguish the untrained, self-styled "specialist" from, on the one hand, the trained, professional optometrist (who only recently has come into existence in appreciable numbers) and on the other hand, the oculist who may have had some training, would appear to have been a factor making conditions favorable to the development of pay clinics for eye conditions, especially refraction. In this latter connection, the high cost of eye-glasses (one might well ask why the cost to the patient has been so much greater than the laboratory cost) has further stimulated the growth of all eye clinics. It has been a significant factor leading to the establishment of the pay clinic.

Even in the charity clinics, refraction came to be regarded as a service for which the doctor should be paid a salary. This custom permitted doctors to devote more time to this time-consuming work, and where this policy was followed the quality of the service rose, especially since the paid practitioners were not infrequently optometrists. As service improves and clinics become well-known, they attract people from other social classes than the indigent and the low-wage earners. People of all social classes become cognizant of the relatively lower cost of equivalent care in the clinic. Witness the flow of patients to the Mayo Clinic from every social stratum.

Public Health Services

One other phase of institutionalized medical practice must be considered, and that is public health work. In the field of public health we have accepted, but perhaps not always recognized, a form of State medicine. Doctors paid by the community or the State carry on the work of prevention of disease and in the case of certain diseases with which we have learned the individual doctor cannot cope efficiently, the work of treatment of disease. We have come to accept our isolation hospitals for communicable diseases, our tuberculosis sanitoria and

our institutions for mental diseases. Who would abandon these forms of organized medicine to return to our previous methods of dealing with such problems?

Preventative work naturally led the public health program into the field of diagnosis. We expect medical inspection in the schools and the refractionist naturally thinks of this particularly with respect to the eye, the nose, throat and ears and the teeth. Paralleling, to some extent, school inspection service is the inspection service of industrial medicine. These two inspection services reveal many cases of visual defects and bad teeth. How long will the public authorize the expenditures of vast sums in discovering such defects without doing something about them? "In every city where medical school inspection has raised this problem," says Davis and Warner, "private medical practice has proved itself incapable of solving it." So the community finds a solution: we have it in the school dental clinics which, in some quarters, at least, have spread rapidly, particularly in recent years with the support of public funds.

Medical Education in the Health Institution

Mention has been made of use of clinics for teaching purposes. This is the chief method in medicine today for "training" men for the specialties. Prior to the establishment of schools of optometry, it was the only method of providing instruction in eye work.[4] If post-graduate medical instruction centers around the clinic, to no less an extent has institutional practice been firmly entrenched in undergraduate education. The physician, the optometrist, the dentist of today is educated in the ward and the clinic; he is brought up in institutional practice.

Summary

To sum up then, we see that institutional practice, growing out of a dole for the poor, has become an established and growing thing in American life because:

1. Modern scientific medicine is made more efficient by organization.
2. Modern medicine requires expensive equipment:
   a. The capital investment required in certain fields prohibits private practice.
   b. Economies possible through organized use of equipment (and personnel) give rise to lower "relative cost of equivalent care."

3. Public health necessitates organized effort.
4. "Medical education is now carried on under conditions of institutional practice."

PART II—THE PRESENT SITUATION

THE TREND TOWARD INSTITUTIONAL PRACTICE

"Four million persons, in 1917, were receiving medical care annually in out-patient clinics in the United States, according to Davis & Warner in their book on Dispensaries. In 1922 the number was estimated by the American Medical Association as eight million."[5] Reports tell us that in the last few years as much as one-sixth or one-fifth of the population has been on relief at a given time.[6] Conservatively, twenty million people receive such medical care as they obtain through government channels—institutional direction if not always institutional practice. It is said that twenty-five million more people are potential relief clients. Even without this information, mere passing thought will tell us that a large part of the population not on relief, received part or all of its medical care at clinics, including and especially eye clinics.

The Problem

In the face of the phenomenal development of out-patient clinics it was only natural that certain questions should be raised such as those asked by Davis and Warner: "What are the fundamental principles of the organization and management of a Dispensary, and of its relationship to the community? What groups or 'social classes' of patients do Dispensaries serve? What classes should they serve?" Physicians charged abuse of clinics. What were the facts as to ability of clinic patients to pay private fees? What do people spend for the care of health and how do they spend it? Do they get the most their money can buy? What does adequate medical care cost? How many people get it?

The Nature of Medical Care

In a consideration of the cost of medical care certain things stand out. First, illness does not occur regularly. The money to pay for the care required is not taken weekly from the weekly income, as in the case of expenditures for food, or even monthly as in the case of rent. Second, illnesses vary in kind and degree, so that cost varies over a tremendous range. Third, if it does not strike all classes evenly, it strikes the low income groups hardest. Fourth, the big bills that are

so disrupting to family budgets become due at the end of incapacitating illnesses, after a period in which there may have been no income. These facts, coupled with the data on income and sickness expense which follow, tells us why there can be no budget provision for doctors' bills. Family sickness budgets are a myth. Fifth, there is much neglected sickness. In a study of 1,600 cases of disabling illness occuring among 9,853 persons studied out of a population of 11,800 residents of Dutchess County, New York,[7] it was shown that 24 per cent of the cases received no medical care whatever. In the years 1921-1924 the U. S. Public Health Service made a survey of sickness in Hagerstown, Maryland.[8] This study included many "minor" illnesses as well as disabling illnesses. Half the cases had no medical treatment. (This does not include the self-treated cases.)

Income Distribution and Health Expenditure

We might well consider here some facts about income in the United States and then what proportion of it goes for health service. From figures published by the National Bureau of Economic Research, Dr. Davis, in 1931 compiled the following table of incomes of the forty-five million persons gainfully employed:[9]

Incomes over $5,000, less than 1,000,000 persons, or 2 per cent.
Incomes $3,000-$5,000, a little over 2,000,000 persons, or 5 per cent.
Incomes $2,000-$3,000, about 6,000,000 persons, or 14 per cent.
Incomes $1,500-$2,000, about 18,000,000 persons, or 35 per cent.
Incomes $1,000-$1,500, about 13,000,000 persons, or 30 per cent.
Incomes less than $1,000, about 6,000,000 persons, or 14 per cent.

"On the average," Davis states, "there is more than one earner to a family, hence we may picture the great mass of families in the United States as self-supporting on between $1,500 and $2,500 a year. In 1925, Governor Smith's Housing Commission estimated that even in his city of high costs and high incomes, two-thirds of all families have annual incomes under $2,500."

In a study of 536 consecutive cases (including private full pay cases) discharged from Chicago hospitals (including out-patient departments), income figures were secured for 523 families:[10]

20 per cent had incomes less than $1,000 a year.
47 per cent had incomes from $1,000 to $1,999.
20 per cent had incomes from $2,000 to $2,999.
8 per cent had incomes from $3,000 to $5,000.
5 per cent had incomes over $5,000.

Discussing the income and the sickness expense of 4,560 families, widely distributed, as reported by the Committee on the Costs of Medical Care, Davis says:[11]

"Thirty-seven per cent of these families lived on less than $2,000 a year; 30 per cent on from $2,000 to $3,000; and 31 per cent on over $3,000. The average expense per family increased very strikingly as the income increased. The lowest group spent an average of $71.48, while the highest group, those with incomes of $5,000 or more, spent $311.06, more than four times as much. Families with incomes of less than $1,200 spent on the average of $66. In contrast, those with incomes of $10,000 and over spent $520 a year. Five per cent of the income was expended in each case, but the difference to the families between the expenditure of 5 per cent of $1,200 and 5 per cent of $10,000 is tremendous.

"This study showed, as earlier studies had, that a small number of families carried the greater share of the expense. Nineteen per cent of the families with incomes of less than $2,000 carried nearly two-thirds of the expense. Thirty-one per cent of the families with incomes between $2,000 and $3,000 carried three-fourths of their illness expense. Forty-four per cent of those with incomes from $3,000 to $5,000 carried 85 per cent of the expense. A little over a third of the families in the top group, those with incomes of $5,000 or more, carried 81 per cent."

Of 7,300 white families with incomes between $1,200 and $5,000 approximately 75 per cent spent less than $100 per year for all medical services, according to the Committee on the Costs of Medical Care. Less than $20 per year was spent by 27 per cent. The United States Bureau of Labor statistics reported the following study made in 1918-1919 of 12,096 families in 92 cities.[12] The incomes and the expenditures for health services were as follows:

Income Group	No. of Families in each group	Av. Amount Spent in each group	Approximate per cent of income
Under $900	332	$34.10	4.3
$ 900-$1,199	2,423	43.34	3.9
1,200- 1,499	3,959	55.56	4.1
1,500- 1,799	2,730	67.85	4.2
1,800- 2,099	1,594	73.75	3.9
2,100- 2,499	705	81.77	3.7
2,500 and over	353	95.56	3.7
All incomes	12,096	$60.39	4.0

The average family was slightly less than five persons, the average expenditure $60.39, or a little over $12.00 per person per year. What portion of the $60.39 went for eye care is not told, but we are given information which is very suggestive. The average expenditure per family for eye glasses was $1.75 per year. Another study of 2,046 city families, of the Bureau of Labor Statistics, discloses the information contained in the following table:

EXPENDITURE FOR EYEGLASSES AMONG 2,046 FAMILIES

Amount Expended per Family During Year	Number of Families Spending Specified Amounts
0	1,509
$ 0.01-$ 4.99	128
5.00- 9.99	193
10.00- 19.99	113
20.00- 29.99	11
30.00- 39.99	2
40.00- 49.99	0

Proposed Solution and Current Practices

The most extensive study of the whole problem of medical care is that which was made by the Committee on the Costs of Medical Care, headed by a former University president and then cabinet member under President Hoover. On the basis of its findings, this body made five recommendations in 1932. Three of these are still of interest to us today.

First, the committee recommended that medical service (by which is meant all service dealing with the body and its functions) "be furnished largely by organized groups of physicians, dentists, nurses, pharmacists and other associated personnel. Such groups should be organized, preferably around a hospital, for rendering complete home, office and hospital care."

Second, it was deemed advisable "that the costs of medical care be placed on a group payment basis, through the use of insurance, through the use of taxation, or through the use of both of these methods."

The third point which concerns us is the committee's recommendation, which cannot but find favor among optometrists, "that specialties be restricted to those specially qualified."

The American Medical Association has refused to accept the principles set down by the Committee on the Cost of Medical Care. It has formulated ten principles of its own, only the first of which need be mentioned here. This is that "all features of medical service in any method of medical practice should be under the control of the medical profession." In general attitude, the American Dental Association has taken a position similar to that of the medical society.

The American College of Surgeons has shown a progressive spirit and enlightened mind. Affirming its "desire to co-operate with other agencies looking toward the provision of more adequate medical service to the whole community," this organization approved the principle of prepayment for medical service. In June, 1934, the Committee on Economics of the Canadian Medical Association recommended compulsory health insurance for all persons, with dependents, having an income of less than $2,500.

Dr. Bissell B. Palmer, former president, of the American College of Dentists, would dispel the illusions that the demand for broadened health service is a transient one that will subside with the passing of

the present crisis. He points out "that in 1929, our highly prosperous year, 70 per cent of our American families had annual incomes of less than $2,500."[13] Remarking the change in attitude toward social insurance on the part of leaders of the dental profession, he says:[14]

"At present there is ample evidence that dentistry is rapidly becoming aware of the role that must be taken by the health-service professions in the current movement to build a social order of greater security and happiness for our entire population. There is also a growing sentiment among its leaders that dentistry should not only favor academically a practical, equitable system of dental-health service based on sound professional and social principles, but actually should initiate, plan for, and support such a development. The public does not exist for the benefit of the professions. On the contrary, these professions exist solely for the benefit of the public. It is certain that dentistry, conscious of the soundness of this doctrine, will not be deficient in meeting fully its obligations to the public welfare."

While strong and influential bodies are advocating health insurance, there is also an extreme group which demands that we stop short of nothing but State medicine, a health service system financed, controlled and operated by the State. This group may be represented by The Medical League for Socialized Medicine, which includes more than one thousand physicians in the New York area alone.

The attitude of one other group is highly important. That "group" is the public. Informed laymen are asking why we should not provide better health service for all the population. They have intelligently studied the problem. They do not propose to sit back and watch confusion turn to chaos. Lee W. Merriman, city editor of the Pasadena Post expresses it:[15]

"You doctors are experts. You, before anyone else, should be able to bring forward and install a sound program. But if you fail to do so, remember these things: We cannot go back even to the partial satisfactions of 1929 when in a given twelve months only three out of five of us had any contact whatever with any of the professions which guide and care for health. Still less in 1934 can we buy adequate medical care in the ways open to us. For the future a precedent set by public education. If those who are technically qualified will lead, well and good. Otherwise, the public will go forward.

"If I read correctly, that is the message of the American people to the medical profession. It is not defiance. It is a challenge.

"No man—and no profession—can stand against the tide. He can go with it, or he can guide it, but he cannot turn it back. It is not yet too late to guide."

What the public wants has been summed up:[16]

1. Medical service not as a charity but paid for on a basis consistent with the self respect of American citizens.
2. Medical service so organized as to furnish him with continuous contact with a personally interested physician, and which does not confuse and subdivide him among independent, competing specialists.

3. A system of payment which will develop maximum paying power from his income.
4. A system of payment which will stimulate prevention rather than the care of sickness.

What effort is being made to give him what he wants? We have discussed the various principles which have been advanced. Has there been any application of them?

In several states, voluntary health insurance is operating widely. In California, a compulsory health insurance bill has the backing of the State medical society.[17] This is interesting, for California has already tried a number of plans sponsored by organized medicine—not less than three county society plans—and found them to be entirely satisfactory halfway measures.[18] California has one of the most successful group practices in the country, headed by one of the medical advisors of the Committee on Economic Security.[19] Finally, California has the largest private group practice operating on a voluntary insurance plan—the Ross-Loos Clinic, with a staff of 38 physicians and caring for 40,000 people in 12,576 families.[20] The total average cost per family for 1934 was $2.69 a month, including all charges for all services, not excepting hospital care. That the subscribers include the members of the faculty of one of the large universities as well as the members of industrial groups, is evidence of the recognition and acceptance of this form of practice by the community generally. The opinion of physicians of high standing who investigated the clinic was that care was given well and promptly and was better than average.[21]

Trinity Hospital, Little Rock, Arkansas, operates a similar voluntary insurance plan achieving no small degree of success. In Detroit, Michigan, the County Medical Society established the Pino Plan, which provides for installment payment for medical services by persons of certain income groups. The plan, which carries the stigmatizing misnomer of "medical relief," appears to have certain basic defects.[22] It spreads the cost over a period of time, but not over a group of individuals.

Thus far nothing has been said about the effect of past events or present trends upon the individual practitioner from an economic standpoint. It will be sufficient in this discussion if we mention that many doctors have incomes under $2,500 a year, and an appreciable number under $2,000. In California, 51 per cent of the physicians replying to a questionnaire sent out by the State medical society, reported incomes under $250 a month, while the lowest paid man on the staff of the

Ross-Loos Clinic earns $300 a month. This seems to suggest that the doctor, as well as the patient, fares better, from the economic viewpoint, in institutional practice.

PART III—EYECARE UNDER THE CHANGING CONDITIONS OF PRACTICE

THE EYE DOCTOR AND THE TREND TOWARD INSTITUTIONAL PRACTICE

It was pointed out that the democratization of medical practice, as we have it in this country, had its origin in England. We may now observe that England has National Health Insurance, providing for eyecare as an extra benefit on a voluntary basis. Provision is made for the patient to obtain the services of an optometrist if he wishes, but on a basis American optometrists would find hardly tolerable. The circumstances seem rather commercial, centering around the supplying of materials, with compensation for professional services tacked on and at fees which are but a fraction of that paid the ophthalmologist for the same service. There is now a strong movement for the elimination of the optometrist altogether.[23]

The Problem of Eyecare

What has been considered the place of the optometrist in the various plans put forth in this country? Those presented by organized medicine do not provide for ophthalmic service by optometrists. This is understandable. Some time ago the American Medical Association begged hospitals to discontinue employing optometrists for eye work on the grounds that young physicians wishing to become eye specialists (and having only a general medical training), needed the practice obtainable in the hospital—at the expense of the patient! The organizations sponsoring compulsory health insurance do not include the optometrist in the set-up for a different reason, which we shall presently consider. They do not, however, include any provision that would prevent ophthalmologists from employing optometrists to work under their supervision. This is what is suggested by the Committee on the Costs of Medical Care, which considers the optometrist qualified to refract by his training. But the ophthalmologist, for the most part, lacks this training. How, then, can he qualify to supervise? No optometrist having public welfare at heart can endorse a scheme so contrary to the interests of society as one which provides for supervision of the trained by the untrained.

Why should not optometric services be provided for in the health

insurance plans? The answer is found in another question: Can the optometrist care for all eye troubles of the insured person? Who shall determine to what type of practitioner the patient shall go first? If he consults a refractionist and needs medical treatment, shall there be two fees or shall the fee be split? If he consults a physician and needs a refraction, what assurance is there that he will ever see a competent refractionist?

The solution would seem to lie in one of two procedures. There might be provided an adequate training in eye work, to be required of physicians desiring to practice in this field. Repeated efforts, however, on the part of discerning ophthalmologists to get the medical profession to adopt such a program have failed. This has been clearly brought out by Edwin Forbes Tait.[24]

A Suggested Solution

The second course open to society is to develop a group of eye doctors qualified to treat ocular pathology as well as functional and structural anomalies. The present attempted division of the eye field between the ophthalmologist and the optometrist is impractical. The work for which the optometrist is trained constitutes 90 per cent of all eye work (measured by number of cases). From this fact alone, we can readily comprehend the surgeon's unwillingness to confine himself to his own field, even though it is disproportionately lucrative. Such an eye doctor as described above will be equipped to care not merely for 90 per cent of all cases, but 100 per cent. His training must be adequate. In addition to the training the optometrist now receives, the new eye doctor must receive thorough instruction in ocular therapeutics and surgery. He must be better trained in these fields than is the ophthalmologist of today. He must be educationally and legally qualified to practice *all* methods of local treatment for the relief of eye conditions. Such a practitioner will best fit into a program designed, in the words of Michael M. Davis, not to "confuse and subdivide the patient among independent competing specialists."

Immediate Needs

In the meantime, it is desirable that reliable information be obtained concerning the incidence of cases of refraction, ocular pathology amenable to local treatment, convergence anomalies and subnormal vision, *in unselected groups*. Much of the accepted data of this sort are highly questionable. We should also have information as to what percentage

of cases requiring treatment receive it. What do people in the various income groups spend for ophthalmic services? Whom do they consult? How frequently? What does adequate eyecare cost? What kind of set-up, conforming to sound professional and social principles, will provide the best eyecare at the least cost?

These and other questions should be studied by the Committee on Socio-Economics in the coming years. It is suggested that the Academy sponsor and finance such a study, assuming a position of leadership in society's endeavor to provide adequate ophthalmic services in a changing world.

REFERENCES

1. Davis, Michael M., Ph.D., and Warner, Andrew R., M.D., DISPENSARIES. New York, The Macmillan Company, 1918, p. 6.

2. Ibid, p. 7.

3. Ibid, p. 331.

4. When the courses in optometry were established at Columbia University, the University stated in its prospectus: "The proper treatment of refraction-errors of the eye requires today on the part of the practitioner a knowledge of geometrical and physiological optics which cannot be obtained in the courses offered in the colleges or medical schools of the country."

5. Davis, Michael M., Ph.D., CLINICS, HOSPITALS AND HEALTH CENTERS. New York, Harper and Brothers, 1927, p. 13.

6. In some sections, the figures are said to have reached as high as 70% of the population.

7. State Charities Aid Association. SICKNESS IN DUTCHESS COUNTY, NEW YORK, ITS EXTENT, CARE AND PREVENTION. (New York, September, 1915), pp. 87, 98.

8. Sydenstricker, Edgar. "A Study of Illness in a General Population Group," PUBLIC HEALTH REPORTS, XLII, No. 2 (January 14, 1928).

9. Davis, Michael M., Ph.D., PAYING YOUR SICKNESS BILLS. Chicago University of Chicago Press, 1931, p. 192.

10. Ibid, p. 114.

11. Ibid, p. 39.

12. United States Bureau of Labor Statistics. COST OF LIVING IN THE UNITED STATES, pp. 444-453. Washington, D. C.: Gov't. Printing Office, 1924.

13. Palmer, Bissell B., D.D.S., "What of the Dentists?" SURVEY GRAPHIC, December, 1934, Vol. XXIII, No. 12, p. 598.

14. Ibid, p. 635.

15. Merriman, Lee M., "The Public's Impatience," Ibid pp. 634-635.

16. Adapted from the summation by Michael M. Davis in his article, "Change Comes to the Doctor," SURVEY GRAPHIC, April, 1934, Vol. XXIII, No. 4, p. 163 et seq.

17. Ross, Mary, "California Weighs Health Insurance," SURVEY GHAPHIC, May, 1935, Vol. XXIV, No. 5, p. 213.

18. Brown, Philip King, M.S., "California's Medical Mix-Up," Ibid, September, 1934, Vol. XXIII, No. 9.

19. Brown, Rexwald, M.D., "We Believe in Group Practice," Ibid, December, 1934, Vol. XXIII, No. 12, p. 595.

20. Ross, Mary, "The Case of the Ross-Loos Clinic," Ibid., June, 1935, Vol. XXIV, No. 6, p. 300 et seq.

21. The Ross-Loos Clinic was made the subject of a radio talk in the Consumers Radio Series, sponsored by the National Advisory Council in Education.

22. Ross, Mary, "Sickness Bills by Installment," SURVEY GRAPHIC, March, 1935, Vol. XXIV, No. 3.

23. Your committee has corresponded with informed practitioners in England as well as with doctors practicing in sections of this country where organized forms of medical practice are already in existence.

24. Tait, Edwin Forbes, Ph.D., "A Survey of the Present Educational and Legal Conditions in the Field of Eye Work," THE PENNSYLVANIA OPTOMETRIST, February, 1935, pp. 6-11.

25. For a more detailed discussion of this subject, see article described in reference 24 above.

BOOK NOTICES AND REVIEWS

Books received are acknowledged by notices in this department. Special selections will be made for more extensive review in the interest of our readers as space permits.

THE VERTEBRATE EYE AND ITS ADAPTIVE RADIATION.

Gordon Lynn Walls. Cranbrook Institute of Science, Bulletin No. 19. August, 1942. Cloth. 785 pages. Price $6.00.

Doctor Walls, the author of this monumental work on the vertebrate eye, is at present research associate in ophthalmology at the Wayne University College of Medicine, Detroit, Michigan. He is known personally by many who will read these comments about him and his work, and I am sure that many state and local societies (from nature lovers to visual specialists) will desire him as a lecturer from time to time regarding many of the fundamental topics treated in this volume. In fact, many in Michigan and surrounding states know Doctor Walls through the joint research undertaken by him and the late Dr. Harold D. Judd, an optometrist of Detroit.

In the preface Doctor Walls wrote: "It has seemed to me that it is time an attempt was made to interpret comparative ocular biology as a whole to those who want to know what the eye is all about, but are repelled by the pedantic terminology of anatomy texts, the mathematics of physiological optics, the scatteredness of the ecological literature, and the German language. In this book, I have made such an attempt." Certainly Walls' attempt has been very successful in every particular and all of us who are in any wise interested in eyes and eyesight or again any who, perchance, are simply interested in a delightfully written and skillfully compiled volume—I almost started to say wonderful detective

story of Mother Nature and her devious ways, equally fascinating to the inquisitive youth or the staid and conservative old scientist—owe Doctor Walls many a vote of thanks for the long hours devoted to his labor of love.

Furthermore, not only did Doctor Walls succeed in his attempt as a scientific writer but, in addition, the Cranbrook Institute of Science is to be complimented on the fine workmanship displayed in this volume. Inwardly, the book is full of valuable information for the mental eye; outwardly, it is a joy to the physical eye.

A review of such an "arbeit"—as we often call an outstanding piece of work—is impossible. To say it contains 785 pages with a bibliography of 25 pages and a splendid index and glossary of over 60 pages conveys no idea of what it is except to indicate the arduousness of such undertakings. The main divisions are: Part I—*Basic* (1) Light and its perception; (2) A typical vertebrate eye: the human; (3) The vertebrate retina; (4) The visual process; (5) The genesis of the vertebrate eye; (6) Elements of vertebrate phylogeny; Part II—*Ecologic* (7) Adaptations to rhythmic activity; (8) Adaptations to diurnal activity; (9) Adaptations to nocturnal activity; (10) Adaptations to space and motion (accommodation, depth perception, movement perception, et al); (11) Adaptations to media and subtrates (aquatic, air); (12) Adaptations to photic quality (color vision, coloration of the eye, dermal color changes); followed by Part III—*Synoptic*, discussing in various chapters the eyes as a whole and the retinas of cyclostones, higher fishes, amphibians, reptiles, birds and mammals.

Doctor Walls is possessed of an easy and enticing manner of presentation. Throughout the whole volume there runs a subtlety of expression and, as one might say, many a twinkle of an eye which eases the otherwise coldness of fact after fact. I shall cite two examples.

"It is perhaps significant, in view of the impossibility of effective osmosis over a half-submerged cornea, that *Anableps* is one of the two or three teleosts known to have ciliary folds. At any rate, the eye of the Cuatro Ojos (a four-eyed fish) is one of the most remarkable of vertebrate eyes. The reader has probably by now given up trying to select *the* most remarkable!" And again:

"The female marine turtle is in a bad way visually when she comes ashore at night to lay her eggs, for her aerial vision must be hazy and dim even if the moon is bright; and though she closes her eyes tightly when digging her nest, the reduced lids are inadequate to prevent the

eyes' getting clogged with sand. All in all, she must be very glad to get back in the water, toward morning!"

And the marvelous chapters on color vision in fishes, birds, reptiles and mammals! If you "want to know what the eye is all about" get this book: it is a rare treat.

Charles Sheard.

WHY WE HAVE AUTOMOBILE ACCIDENTS. Harry R. De Silva, Yale University. Wiley and Sons, New York City, $4.50.

De Silva has compiled material that considers almost every angle of Highway Safety. In reality, an appeal is made to incorporate accident prevention as a unified activity of National, State, and Local Government. Ample evidence is presented on how an intelligently planned over-all program will benefit the general public. Greatest emphasis is placed upon the driver, or to use the writer's word, "Major reduction in accidents inevitably depends upon driver improvement."

In that part of the book devoted to skills, De Silva has this to say, "Tests of driving skill fall into two general classes, those depending on rating by human beings, which are given at the wheel of a car, and those depending on apparatus, which are given under controlled laboratory conditions." The indicated visual tests are those of acuity, right eye, left eye, and both eyes, depth perception, tests for glare, and color vision, and the possibilities of tunnel vision. Fatigue is maintained as a factor affecting driver's ability, however, no particular tests are indicated. All tests are fundamentally described and with reasoning for inclusion. An interesting side-line is the urgently expressed request for studies on the military driver situation, on the basis made that little or nothing has been done to train or improve the ability of truck or tank drivers. Comparison is made with the Air Corps, where the testing is greatly improved through a much briefer span of years.

The entire book is well done and might in truth be called a handbook on automobile accidents and their prevention. As such it will prove more than of passing interest to the optometrist, as a citizen, and in his day-to-day work may prove an increasing influence over those who drive.

Rudolph H. Ehrenberg.

TRANSACTIONS OF THE AMERICAN ACADEMY OF OPTOMETRY

by J. Fred Andreae, Secretary

A department devoted to announcements, reports, appointments, organization data, news, professional problems and ideals, as these relate to the Academy.

THE ACADEMY AND THE NEW YEAR

Approaching the end of 1942 seems to have greater significance than ever before; perhaps I should also say the "beginning" of 1943 will have even greater portent. For many of us, thus far, this World War has meant little change in our accepted way of doing things, but, unquestionably, the coming year will change all of this. Rationing of gasoline, fuel oil and food commodities will make each of us acutely aware of the fact that we are participating—to that extent at least. The family with its members actively in the service definitely feel the war's impact; to them and to those in service we owe every sympathy and helpful co-operation.

The profession of optometry faces a steady depletion in its ranks through the enlistment of its younger members in the service, and those remaining must endeavor to maintain or rise to the high ideals of ethical professional practice required to gain and hold governmental and lay recognition. Our active participation in the Professional Advancement Program of the American Optometric Association is one way in which we can further this desired end.

The year 1942 has not seen any let-down in the activities of the American Academy; a considerable number of its Fellows are members of the armed forces and many others are actively engaged in Civilian Defense. Meanwhile the Academy itself has engaged in an active program. The constitution and by-laws have been revised and published in a booklet which also contains pertinent information as to Fellowship requirements, etc. It has sponsored the publication of Fellow Radde's translation of Ewald Hering's original work in German entitled SPATIAL SENSES AND MOVEMENTS OF THE EYE. Finally, although the Annual Meeting was postponed, the Program Committee has continued its work of assembling original papers and the other standing committees have not let down in their activities.

I take this opportunity of extending hearty Holiday Greetings and expressing the hope that the coming year will see restoration of the ideals of peace and good will toward men.

NEW YORK ACADEMY OF OPTOMETRY MEETS

The New York Academy of Optometry held its regular monthly meeting at Hotel McAlpin, December 15, 1942. President C. L. Treleaven, being absent because of recent illness, Vice-President Leo Bannon presided over one of the most satisfactory meetings of the year.

Essentially the entire evening was devoted to an extended consideration of the American Optometric Association's Professional Advancement Program.

Dr. E. LeRoy Ryer, National Director General of the Program, was also the founder and first President of the New York Academy of Optometry, hence gets from this group of practitioners a free, frank and straight forward expression of opinion with no reservations.

The outstanding conclusion reached is: That little progress can be hoped for in this way of gaining recognition for optometry by and from Governmental officials until Federal legislation is obtained. And second, that the American Optometric Association should make an intensive effort without delay to secure such legislation.

COUNCIL ON PROFESSIONAL ADVANCEMENT OF AMERICAN ACADEMY OF OPTOMETRY

REASONS FOR THE ACADEMY'S PROFERRED SUPPORT

Since one of the Academy's fundamental precepts is greater skill through advanced learning and high professional and ethical practice standards, it is in keeping with the tenents of this Society to offer both moral endorsement and active support to that phase of the American Optometric Association's comprehensive program which has to do with a professionalizing of practice standards.

COUNCIL PERSONNEL

One member from each State in which there are Academy members.

FUNCTION OF COUNCIL

1. To offer Academy influence in promoting the American Optometric Association's Professional Advancement Program by encouraging, fostering and assisting by every available means consistent with Academy policy, those commercial optometrists outside of the sphere of the Academy, to professionalize their practices to conform to certain ethical and professional standards.

a. Professional information—Literature should be prepared and disseminated which sets forth the advantages of professionalism over commercial practices—a few suggestions follow:

(1) It will have to be indelibly carved in the consciousness of all optometric practitioners, that rank commercialism is one of the basic causes of not only lack of recognition by, but organized opposition against our profession by medicine, dentistry, Federal and State Governments, the educational profession and the armed forces which at this crucial time, unless sweeping correctives are made, threatens to make of optometry an un-American Socialized reform victim and a war casualty.

(2) The fact will have to be emphasized that the most satisfactory to serve and most financially favored strata of the public gravitates to professional environments.

(3) It will have to be made painfully clear that since Optometry has been branded with the stigma of commercialism by the Government and all other groups above mentioned, the real optometric casualties will consist of those who defy these warnings and continue their commercial pursuits because—commercial practices are to be condemned and exposed to public gaze. Note—Such action is implied on page 16 of "Optometry The Profession," published by the A.O.A. wherein it states: "Rationalization prevents some individuals from seeing clearly the fallacies of their unsound practices, and they must be exposed."

(4) It can be set forth that practitioners who have the ability to succeed in commercial practice can likewise succeed financially in a professional practice. The majority who make this transformation increase the quality and size of practice and decrease their overhead.

(5) It must be shown that such improvements in practice standards not only increases the practitioner's self respect but elevates him to a higher professional and social plane.

Note—The chairman who is assigned this responsibility will write or have written and assembled such material as deemed both fitting and effective and submit such material to the editorial committee of the Academy for review prior to its distribution. The chairman should negotiate with Dr. Ewing Adams, President of the A. O. A. for a proper mailing list and such other information as will allow effective coordination.

b. Personal aid program—Council members should personally invite such candidates who show a desire to transform their commercial practices to a professional status, to visit their offices and to assist them individually with such stepping stone advice as is accepted and needed.

Note—The chairman who is assigned this task can evolve an elaborate and helpful personal aid program. In initiating this program inspirational talks can be given before groups of optometrists who would thus profit by them. This can be followed by personal invitations to visit various professional offices. Of course all chairmen should assign regional associate chairmen to carry on the duties of this office throughout each respective State or district.

c. Professional cooperation—Tender those who have been professionally transformed and who show themselves worthy, that same degree of respect and professional cooperation in interprofessional practice and within study groups, that have been accorded the long established professional men.

Note—While this is the least important factor, it remains an important detail and the responsibility should be assigned district chairmen of acquainting and influencing all of the professional practitioners with the importance of extending cooperation to all converts to the improved order.

ORGANIZATION

Academy President, Dr. Arthur P. Wheelock, will make committee appointments.

COUNCIL ON PROFESSIONAL ADVANCEMENT

General Chairman

It will be the duty of the General Chairman after more fully developing and expanding the plan which is herewith set forth in outline form, to acquaint his nation-wide organization of regional directors or district chairmen with their respective duties. The more wide-spread the distribution of assignments and the greater number of associates who compose this council, the more promising should be the results.

Associate Chairman

1. Associate Chairman No. 1 can be assigned the duties set forth under point *a.* having to do with (Publicity) Professional Information. This Chairman can seek as much assistance as needed by tapping such sources as Koch, Ryer, Hotaling, Feinbloom and James A. Palmer. The work of distribution of literature can be delegated to various members of the Council appointed for that purpose.

2. Associate Chairman No. 2 can be assigned the joint responsibilities under heading *b.*, Personal Aid Program and *c.*, Professional Cooperation. District chairmen through the States can be assigned the work of performing the duties of this office in their respective regions.

COLLEGE STUDENT PROCUREMENT

When this organization is completed and when time has attested the value of its function, it can then be best judged as to the feasibility of using such Academy machinery in the interest of College Student Procurement.

In this connection we should remind ourselves of the three following factors: (1) Unless the A.O.A. survives and successfully functions on its proposed "all out program" the Academy will suffer in like degree, (2) one way to contribute to its success is for all integral Societies within its ranks to support the parent organization in this important drive, and (3) one of the most productive policies of creating Academy interest is to work at the college source. If the Academy uses its influence to procure students and backs this up with a student guidance program throughout college career, there will result a much closer affinity between the student body as well as the faculty personnel and the American Academy of Optometry.

DON RODNEY PAINE
CHAIRMAN ADVISORY COUNCIL
AMERICAN ACADEMY OF OPTOMETRY

DECEMBER 12, 1942

ABSTRACTS

A department in which will appear abstracts of the literature of optometry, ophthalmology and applied optics. These will be classified according to the following list, although contributions to all sections will not necessarily appear in each issue.

1. Ocular Refraction.
2. Physiological Optics and Color Vision.
3. Ocular Muscles.
4. Orthoptics and Reading.
5. Anatomy, Histology and Embryology.
6. Ocular and General Pathology.
7. Ophthalmic Lenses and Material.
8. Instruments.
9. Hygiene and Illumination.
10. Applied and Physical Optics.
11. Education, Sociology and Economics.
12. Miscellaneous.

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12. MISCELLANEOUS

THE EYE PROBLEM IN THE NATIONAL DEFENSE SITUATION. H. S. Gradle. Sight-Saving Review, 1942, 12, 1, 3-10.

Of the first million men reporting to local draft boards, 430,000 were rejected for full military service because of some physical defect. Of this total of 430,000 who were not immediately accepted, 50,000 were held up because of ocular problems. Of these 50,000, approximately 17,000 had serious eye conditions that rendered them unfit for military duty. This group was placed in Class IV-F. The remaining 34,000 had ocular problems that would permit only limited military service. This group was placed in Class I-B. Gradle's review of the totals, indicates that about 10,000 men between 21 and 35 years of age, out of a total of a million men between these age limits, had some form of present or past eye disease which rendered them unfit for full military duty. Within these age groups the per cent of ocular pathology, both past and present, was found to be just one per cent.—C. C. K.

OCULAR HEADACHE. Balding, G. Eye, Ear, Nose and Throat Monthly. 1942, 21, 2, 48.

Balding classifies headaches as to their causes, these being (1) headaches caused by retinal irritation such as dazzling snow, bright sunlight, arc welding, exposure to physio-therapy lamps, glare and strong reflected light. (2) Headaches caused by organic diseases such as conjunctivitis, uveal tract inflammations, glaucoma, retrobulbar neuritis and proptosis. (3) Headaches caused by eye strain such as induced by hyperopia, myopia, astigmatism and defects of the extraocular muscles.

—C.C.K

FOR A BETTER YEAR

IN 1943

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Repeated tests with the Thermolux, the scientific instrument which registers heat (infra-red) absorption, light transmission and relative efficiency, prove that Therminon Lenses block out 50% of the infra-red radiations while transmitting 92% of the useful visible light.

Give your patients the benefit of Therminon comfort and protection in meeting their wartime duties during 1943.

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IN 1929 it was our privilege to report, before the American Academy of Optometry, the results of the experiments we had conducted in relation to the action on incipient cataract of lenses whose transmission of infra-red radiations was low. Inquiries from many quarters seem to indicate that the principles upon which red-free cataract treatment is based have not been well disseminated. The help obtained by hundreds of incipient cataract sufferers through the application of infra-red absorption lenses justifies reviewing these principles.

—Drs. Ryer and Hotaling in the Optical Journal, August 15, 1942

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